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EFFECTS OF UNINTERRUPTED SUNLIGHT ON PLANTS.—Dr. Schuebeler, of Christiana, has published in the Norwegian *Naturen* the results of some experiments on the acclimatization of southern plants in Sweden and Norway. His first experiments relate to the effect of the almost uninterrupted sun of Scandinavia on winter wheat. Samples from Bessarabia and Ohio sown showed in the first crop an increase in size and weight of grain, together with a deepened color. Increased development of the pigment of plants is shown also in the common garden flowers of central Europe, which when raised in Norway take on richer color. *Veronica serpyllifolia*, for example, changes from pale to deep blue, while *Trientalis Europæa*, naturally white, becomes decidedly pink. Under continuous sunlight also plants which usually fold their leaves at night, such as *Mimosa pudica*, kept them always open. It is also found that the aroma of fruits and vegetables is much increased. Some of the most savory of European garden vegetables when grown in Norway become absolutely disagreeable to the taste. This increase of aroma points to what may and ought to become a profitable industry in the Scandinavian peninsula, viz., the raising of those plants which are valuable for their yield of fixed and essential oils, inasmuch as the per cent. obtainable from a given weight is much increased by growth under these peculiar conditions. But while aroma, which seems thus dependent on light is much augmented, sweetness, depending on heat, is correspondingly lessened by moving northward. This is especially noticeable in small fruits, such as the strawberry, plum, cherry, etc. Dr. Schuebeler's experiments extended over 30 years and doubtless the full text of the communications would be most interesting.—C. R. B.

RED CALYX IN *SAMBUCUS CANADENSIS*, L.—As the botanizing season is again upon us it may be well to publish the following note of observations made last summer in this vicinity. By accident I found a bush of the common Elder in which every calyx was of an intense bright purplish-pink color, and this was true of all the flowers and unexpanded flower-buds on the whole plant. Pedicels and peduncles were the usual white, but all, including the calyx, were decidedly hirsute. A further examination proved that about one-fourth of all the shrubs in that patch had the calyx more or less tinted there being about 30 in all. During the remainder of the summer I examined a great many plants and found the calyx more or less colored and hirsute in near one-third observed. In every instance where the calyx was tinted it was also hairy, but in two examples I found the calyx hairy but not tinted. The color was near that of red aniline. The plants that grew in rich alluvial soil appear to be most frequently colored.—J. SCHNECK, *Mt. Carmel, Ill.*

OBSERVATIONS ON REMARKABLE FORMS OF *TRITICUM REPENS*.—I am indebted to Wm. Boott, Esq., for the following: "In the English Flora Sir James Smythe says under *Triticum repens*, 'Schrader describes a remarkable state of this grass figured in Leen, t. 12, f. 4, 1,

in which a great part of the spikelets in the lower portion of the spike are double, or in pairs, contrary to the generic character.'” The above remarks were sent me by Mr. Boott, on seeing my lists of 1878 and 1879, which contain some remarkable forms of *Triticum repens*. No. 1578 (from Colorado) is characterized generally by involute, narrow, rigid, faintly nerved leaves, glumes and palets but slightly nerved, short awned. Some specimens have 9 joints to the rachis of spike, lowest joint with single spikelet (as in normal specimens of *T. repens*), the upper three the same, but all the rest with double spikelets at each joint. Another has 11 joints, lowest one double, all the rest single. From the same root is another stalk with 15 joints, lowest one single, next three double, rest single. Others have 13 joints, 7 double (always the lowest double unless stated otherwise); 18 joints, 8 double; 19 joints, 12 double; 22 joints, 15 double. From the same root as last is one with 22 joints, lowest single, next nine double. From Utah, under Nos. 1004a and 1516, are two very distinct forms, (1) the mountain form with broad, flat, green, nerved leaves; broad, acute, green, conspicuously nerved glumes and palets; (2) the form of the dry and heated valleys, with very long and narrow spikelets (over one inch long), whole plant glaucous; leaves rigid, involute, rather short, narrow; glumes and palets almost horny, smooth, scarcely nerved. Under (1), I have two specimens with 13 joints, lowest three triple spikeleted, rest double. Others have 10 to 15 joints, lowest one double, all the rest single. Others have 25 to 30 joints (very long spikes), lowest five double. Under (2), are some with about 18 joints, lower half all double. Others have 18 joints, all single but the third from the bottom, which is double. One other has 18 joints, lowest one double, next two single, next three double, the rest single.

I have many specimens of the most remarkable forms (besides those already sent out) as well as very many of these forms of *T. repens* with only single spikelets. I have shown the most remarkable forms to Dr. Vasey, who considers them remarkable forms of *T. repens*. These forms with double spikelets are not uncommon, for I have found them in many places in Colorado and Utah.

That the distinction of double spikelets in *Elymus* tends to be broken is shown in forms of *E. condensatus* and *triticoides* which often have the lowest joint single spikeleted, and the upper five also. Two or more single spikelets often occur in both the above and in *E. arenarius*, *Sibiricus* and occasionally in *E. Canadensis*.

In most of the eastern species, the glumes of *Elymus* form an apparent involucre, and to the amateur do not seem to be glumes, but in *Elymus arenarius*, L. and *condensatus*, Presl., in all the spikelets of the former and the upper ones of the latter, they are attached to the spikelets as closely as in *Triticum repens*, and more closely than in *T. violaceum*, especially the long awned form. A question asked by one of our leading botanists will find a good place here: “What is there to distinguish *Elymus Sibiricus* from *Triticum violaceum* but the double and single spikelets,” and if these fail, what then?—MARCUS E. JONES.